

94-167890/21 LOCTITE CORP 92.10.09 92US-958323 (94.04.21) C09 J 4/04 Cyanocrylate adhesive contg quinoid cpd stabiliser - has improved thermal decomposition and isothermal outgassing properties C94-076948 Addnl. Doto: ATTARWALA S 93.10.08 93AU-048934	A81 E15 G03 (A14 E14) LOCT 92.10.09 *AU 9348934-A	A(4-D, 8-A4, 12-A5B1) E(10-A6A, 10-A6B) G(3-B2D1)
<p>A cyanocrylate monomer adhesive compn. includes 0.1-10 wt. % of a quinoid cpd. of the formula (I) to enhance the thermal resistance of the cured polymer.</p> <p></p> <p>$R^1 = C(CN)_2, C(CO_2R^6)_2, C(SO_2R^6)_2$ or $C(Ph)_2$ or R^1 and R^6 combined form a fused ring having a $C(CN)_2$, $C(CO_2R^6)_2$, $C(SO_2R^6)_2$ or $C(Ph)_2$ gp. in conjunction with</p> <p>$R^6 =$ alkyl; and</p> <p>$R^b =$ phenyl; or</p> <p>R^1 and $R^6 = O$, and</p> <p>R^a, R^b, R^c and $R^d = H$, monovalent hydrocarbon, halogen, hydroxyl, alkoxy or strong electron withdrawing gps., or two of R^a - R^d combined form a fused hydrocarbon ring, provided that at least two of R^a - R^d are halogen or strong withdrawing gps.; or</p> <p>$R^1 = O$;</p> <p>$R^1 = C(CN)_2, C(CO_2R^6)_2, C(SO_2R^6)_2$ or a diphenylmethylene gp., the phenyl gps. of which may be opt. substd. with one or more halo, hydroxyl, alkoxy, hydrocarbon, nitro, acyloxy or cyano gps., and</p> <p>R^a, R^b, R^c and $R^d = H$, monovalent hydrocarbon, halogen</p>		

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<p>or strong electron withdrawing gp., or two of R^a, R^b, R^c and R^d combined form a fused hydrocarbon ring.</p> <p>USE/ADVANTAGE The compn. is used as an 'instant adhesive'. The compn. has improved thermal properties.</p> <p>MORE SPECIFICALLY The strong electron withdrawing gp. is selected from carboxylate, carboxylic ester, sulphonyl, sulphonyl halide, sulphur, trifluoromethyl, cyano and nitro gps. At least two of R^a, R^b, R^c and R^d are selected from halo, cyano and nitro gps.</p> <p>PREFERRED COMPOSITION The compn. comprises 0.5-5 wt.% of the cpd. of formula (I). The polymer compn. has an onset of decomposition temp. when heated at 10°C/min. at 100°C; and a wt. loss of 25% or less (10% or less) when heated at 150°C for 900 mina.</p> <p>PREFERRED QUINOID COMPOUND The cpd. is e.g. of the formulae (II) - (V) (13 given)</p>	<p></p> <p></p> <p></p> <p></p> <p></p>
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<p>EXAMPLE 0.5 wt.% tetrafluoroquinodimethane was added to a</p>		

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cyanosacrylate adhesive formulation.

The onset of decomposition temp. was 210°C; wt. loss at 150°C in 900 mins. was 7%; 82°C stability was 20 days; and the fixture speed was 25 sec. for Balas wood and 35 secs. for cow leather.

Results for a comparative example (without the quinoid additive) were 155°C; 96%; 20 days; and 25 secs and 35 secs.

The thermal decomposition and isothermal outgassing properties were improved compared to a formulation without the quinoid additive. (24pp1982--DwgNo0/0).

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